OpenTrack + SimWalk Transport

„Closing the gap“ between railway network and passenger simulation

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What is Passenger Simulation?
SimWalk Transport and passenger simulation

- State-of-the-art passenger simulation means microsimulation, simulating every person as single entity.
- Simulated passengers move realistically in a station environment.
- Simulation allows to analyse station passenger capacities and interfaces.
- SimWalk Transport is a specialised microsimulator for public transport.
Passenger flow simulation in railway stations

What are the passenger flow problems and the benefits of passenger simulation in railway stations?

PROBLEMS:

- Today's ever increasing capacity demands in public transport transit stations put efficient operations and existing facilities at risk.

- Efficient transit connections and transfer times, accurate dwell times for rolling stock, optimized timetables and general passenger security are under pressure due to high passenger volumes.
SIMULATION BENEFITS:

- Passenger simulation provides a tool to **analyse complex passenger flows and interfaces** (boarding/alighting) in railway stations.

- Simulation allows to test **“what-if” scenarios** to evaluate and possibly improve existing or planned transit facilities regarding passenger flows and objects (escalators, stairs etc.).
SIMULATION ANALYSIS:

- Timetable analysis – are timetables adapted to passenger demand?
- Dwell time analysis - are arrival and departure times accurate for passenger dynamics?
- Analysis of boarding / alighting dynamics
- Platform capacity planning
- Connection transfer times and delays
- Rolling stock analysis
„Two worlds“ – Railway network simulation and passenger simulation

„Railway Network World“  INTERFACE  „Passenger world“

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WHAT ARE THE GENERIC INTERFACE PARAMETERS?

- Boarding / alighting dynamics
- Timetables
- Rolling stock capacity
- Planned dwell times (arrival / departure)
- Door and platform properties
- Passenger dynamics on platform
- etc.
„Closing the gap“ – Interfacing Opentrack and SimWalk Transport

- Boarding / alighting dynamics
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- Passenger dynamics on platform
- etc.
How do OpenTrack and SimWalk Transport interface in practice?

SimWalk Transport
passenger simulation analysis

OpenTrack railway
network simulation analysis

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Import OpenTrack planned and calculated data

1. OpenTrack RailML data file
2. Generation of passengers + definition of train arrival / departure by using OpenTrack data
3. Planned or calculated data
4. Simulation of train and passenger boarding alighting

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Simulation with OpenTrack data
Application example

Are calculated arrival / departure times sufficient for a train to process all passengers given a certain passenger demand?

Or: Given a certain occupancy of a train, do passengers have enough time to board the selected train until departure?

SimWalk Transport allows to analyse the number of people who are not able to board the train, given a certain arrival/departure time and occupancy.
Summary

- The combination of railway network and passenger simulation extends analysis and optimization perspectives regarding the simulation of railway interfaces (platforms, railway stations, passages etc.)

- Integration of passenger simulation allows a more comprehensive and accurate timetable optimization, boarding / alighting as well as rolling stock and environmental analysis

- Passenger simulation allows to analyse and optimize passenger/railway interfaces in operation and planning!
Thank you for your attention and your questions!

SimWalk Transport trial version can be downloaded at www.simwalk.com